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A NEW SPECIES OF VELIA FROM FLORIDA (HEM.-HET.)*

By CARL J. DRAKE

While collecting insects about two miles southwest of Gainesville, Florida, during the summer of 1918, the writer found numerous specimens of a species of a water-strider in an old swamp. A study of this material indicates the insect to be an undescribed species of the genus *Velia*, family *Veliidae*. The species is very closely allied to *Velia stagnalis* Burm. Mr. W. L. McAtee has very kindly compared a male and female with his series of *V. stagnalis*, collected in the vicinity of Washington, D. C. The insect is named in honor of Prof. J. R. Watson, who has taken a great interest in Florida insects.

Velia watsoni new species.

Head formed as in *V. stagnalis* Burmeister, the smooth impressed median line quite distinct. Eyes globose, strongly faceted. Antennae long and slender; basal segment curved, much stronger, also two-sevenths longer than the second; the second a little stronger than the third; the second, third and fourth about equal in length. Pronotum very coarsely punctured, longitudinally carinate in the middle, produced and rather narrowly rounded posteriorly, the tubercles large and prominent. Metapleura with the upward projecting spines visible from above, located, as in *stagnalis*, about the middle. First and second abdominal segments (dorsal surface) with a lateral carina on each side. Legs long and rather stout, the under surface of femora and tibiae denticulate; length of tarsi and tarsal segment proportioned about the same as in *stagnalis*. Antennae, legs and body pilose and setigerous, the hairs along the posterior margin of the pronotum becoming rather long. Length, male 4.2 mm. and female 4.1 mm.; width, male about 1 mm. and female 1.12 mm.

Color: General color dark or blackish brown. Legs pale luteous, the bands varying from light brown to fuscous. Eyes black. Antennae pale

*Contributions from the Department of Entomology, New York State College of Forestry, Syracuse University, Syracuse, New York.

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brown to brown. Pronotum brown, the posterior portion becoming yellowish brown in the female. Abdomen dark brown, the venter blackish; connexivum (male) with a yellowish brown spot on the anterior portions of each of the last three abdominal segments and the entire connexivum lighter with more prominent markings in the female.

Described from numerous specimens, collected during the summer of 1918 near Gainesville, Florida. *Type* and *allotype* in my collection. *Paratypes* in the Florida Experiment Station, Museum of the University of Florida and my collection. The eggs are deposited on floating aquatic plants and floating sticks or wood just beneath the surface of the water. The species is predaceous and lives in stagnant water. The macropterous form is unknown. The insect very closely resembles *Velia stagnalis* Burm. from which it may be distinguished by its darker color, the much more prominent tubercles in the pronotum and the much longer antennae. The first antennal segment in *V. watsoni* is much longer than the first antennal segment in *stagnalis*, the first segment in the latter and the second segment in the former being equal in length.

Velia stagnalis Burmeister.

Van Duzee (Cat. Hem. of Amer. North of Mexico) records this species from Pennsylvania, District of Columbia, North Carolina and West Indies. I have two specimens from Sandusky Bay, Lake Erie (collected by V. R. Haber) and four from Rockbridge, Ohio (collected by A. J. Bassinger). The Ohio specimens were collected in stagnant water; they agree perfectly in form and color with a specimen from District of Columbia that Mr. McAtee has kindly presented to me.

ADDITIONS TO THE THYSANOPTERA OF FLORIDA.—V.

J. R. WATSON

A collection of thrips from Mr. A. C. Mason of Miami, contains two new species and a new variety as follows:

57. *Dictyothrips floridensis*, n. sp.

General body color dark brown, legs and antennae light brown. Head and thorax deeply reticulated.

Measurements: Total body length 1.00 mm. Head: length 0.10 mm., width 0.15 mm.; prothorax: length 0.11, width 0.16 mm.; mesothorax: width 0.24 mm.; metathorax: width 0.20 mm.; abdomen: width 0.23 mm.; antennae: segment 1, 24; 2, 40; 3, 50; 4, 40; 5, 48; 6, 58; 7, 16; 8, 24 microns; total length 0.267 mm.

Head 1.5 times as broad as long; cheeks strongly arched, sparsely pilose; front with a median ridge, extending well forward, forming a right angled projection between the antennae. Bristles: two postocular, one in front of each posterior ocellus, and a row of four across the frons in front of the anterior ocellus; all short, but with bright-colored conspicuous bases. *Eyes* very large, occupying ⅔ of both the length and width of the head, markedly bulging, sparsely pilose, facets very large. *Ocelli* very large; the posterior pair situated about the middle of the border of the eyes,

anterior facing forward. *Antennae* 2.5 times as long as the head; segments 1 and 2 dark brown, concolorous with the head, and 3 and 4 yellowish brown, others light brown; 2 much wider than the others, 6 longest; sparsely provided with bristles.

Mouth cone short and sharp pointed.

Prothorax about the size of the head, sides convex and roughened with rather large papillae and bearing a few short, recurved bristles. A rather long and stout bristle on each posterior angle.

Mesothorax abruptly widened (the widest part of the insect), sides very convex and set with papillae and short bristles like the prothorax.

Mesothorax much narrower, sides nearly straight, slightly diverging posteriorly. *Legs* long and slender, light brown, distal part of femora and proximal part of tibiae darker; tarsi and distal part of tibiae very light brownish-yellow; provided with numerous slender bristles.

Wings reaching the tip of the abdomen; membrane slender, dark brown, except the extreme base which is clear, and clothed with numerous short hairs. Anterior margin provided with 14 exceedingly long and stout spines with colorless, dilated tips and arising from thickened bases; anterior vein with 11 spines nearly as large; posterior vein with none, scale with two. Veins inconspicuous. Marginal fringe sparse, lacking from the basal half and the extreme tip of costal margin.

Abdomen rather abruptly widened to the third or fourth segment and from there gradually narrowed to the tip. Spines on the posterior segments moderately long.

Described from many females taken on young guava plants in a greenhouse at Miami by Mr. A. C. Mason on June 10. Type in the author's collection.

Male not seen.

Related to *D. reticulata* but differing in many characters.

58. *Cephalothrips elongata*, n. sp.

Head, thorax, and tube dark reddish brown; abdomen, hind and middle legs and fore tibiae and tarsi and antennal segments 2-5 pale yellowish brown. Base of fore femora and antennal segmental, 6, 7 and 8 darker.

Measurements: Total body length 1.9 mm.; Head: length 0.224 mm., width 0.129 mm.; prothorax: length 0.147, width 0.240 mm.; mesothorax: 0.230 mm.; abdomen 0.240 mm.; tube: length 0.114 mm., width at base 0.058 mm., at apex 0.032 mm. Antennae: segment 1, 40; 2, 45; 3, 53; 4, 56; 5, 45; 6, 40; 7, 45; 8, 27 microns; total length 0.33 mm.

Head nearly twice as long as wide; cheeks nearly straight and parallel (converging slightly posteriorly) for the first ⅔ of their length and then slightly constricted. Postocular bristles long and slender but pale, with colorless dilated tips; a small bristle behind each posterior ocellus and another near posterior median corner of each eye. Vortex smooth. *Eyes* medium sized, elongated obliquely inward and backward on dorsal surface, dark, not protruding. *Ocelli* large but pale, posterior ones situated near the middle margin of eye, anterior directed forward. *Antennae* nearly 1.5 times as long as the head. Segments 2-5 quite uniform in size and color, bristles short and colorless, very inconspicuous. *Mouth cone* very short, not reaching the middle of prothorax.

Prothorax triangular, posterior angles rounded and bearing each a pair

of stout but short bristles with dilated tips; a similar bristle on each anterior angle and two along each side.

Pterothorax narrower, sides nearly straight, converging posteriorly; bearing a few pale, slender spines. *Legs* long and slender; anterior femora somewhat enlarged; fore tarsi with a rather conspicuous thumb-shaped forward-directed tooth; a few slender colorless bristles near distal end of tibiae. *Wings* short, scarcely reaching the middle of the abdomen, membrane narrow, pale, marginal hairs rather long.

Abdomen remarkably long and slender, more than twice as long as the head and thorax together. Spines on the anterior segments few and colorless but rather long, becoming longer and darker posteriorly.

Described from a single female collected from a Barnacle Scale *(Ceroplastes cerripediformis)* at Miami, Fla., by Mr. A. C. Mason.

Type in the author's collection.

This thrips is easily recognized by its remarkably long light yellowish abdomen.

Among the collection of thrips taken in and around Miami by Mr. A. C. Mason are numerous specimens of a Frankliniella which was identified by Mr. A. C. Morgan as close to *F. Cephalica* (Crawford). It differs, however, from the description of that species in many characters and would seem to merit at least varietal distinction. F. cephalica was described from Mexico and has never been reported from Florida.

59. *Frankliniella cephalica masoni*, n. var.

Differs from the description of the species (Thysanoptera of Mexico and the South II. Pomona College Jl. of Ent. Vol. II, No. 1) in the following characters:

Postocular spines short but heavy, the smaller ones absent. Eyes dark orange red. Ocelli large, pale yellow, bordered with deep orange crescents, situated further forward than in Crawford's figure. Antennal segment 1 and basal half of 2 yellow, concolorous with the head; 5, basal half of 4, and most of 3 grayish, almost colorless; remainder light brown.

Posterior angles of the prothorax not as broadly rounded as in Crawford's figure, the two stout spines sharply recurved. The spines on the anterior angles and those on the anterior margin much shorter. Wing membrane usually extending beyond the tip of the abdomen. Anterior margin with about 25 spines, anterior vein 23, posterior vein 17.

Abdomen short and thick, about half as wide as long.

General color yellow; thorax and tip of abdomen tinged with orange. Abdomen with light brown transverse bands.

Measurements: Head: length .07 mm., width .14 mm.; prothorax: length .10 mm., width .17 mm.; mesothorax, width .24 mm.; abdomen, width .24 mm.; total length .9 mm. Antennae: 1, 15; 2, 53; 3, 53; 4, 51; 5, 36; 6, 48; 7, 9; 8, 8 microns; total length .267 mm.

Like F. cephalica the anterior portion of the head is markedly depressed with two stout spines on the edge of the depression in front of the ocelli. Anterior ocellus directed forward. These characters, the smaller size,

and paler color will distinguish it from F. bispinosa which it resembles in general appearance. Like both F. cephalica and bispinosa the second segment of the antenna is extended upward and forward so that it overhangs the 3rd segment and bears two heavy spines on the dorsal surface near the anterior end.

Described from numerous specimens taken from blossoms of *Bidens* sp., wild morning-glory, *Carissa grandiflora*, citrus, mango, avocado, papaya and beans at Miami March-June, 1919, by Mr. Mason, and a single specimen taken by the author from oak at Gainesville, April 20, 1919.

Type in the author's collection. Paratypes in the National Museum.

KEY TO THE AMERICAN SPECIES OF FRANKLINIELLA
(Euthrips in part)

I. Postocular bristles short or wanting; row of bristles along the anterior margin of the prothorax wanting or at least inconspicuous except often the third from the outer angle.

a. Antennae uniformly brown to dark brown, concolorous with the body; wings light brown, veins prominent; spines brown, 16-22 on fore vein, 13 to 17 on hind, short and comparatively stout, a white longitudinal area near the base of the wing.
F. minuta (Moulton) '07.

aa. Antennal segment 3 yellowish, 4 and 5 light grayish-brown, yellowish at the base; wings gray-brown, veins not prominent, spines on the wings normally long and stout, 14 on fore vein, 10 on hind.....*F. fuscus* (Hinds).

II. Postocular bristles conspicuous.

a. Abdominal sternites with a transversely elliptical pale area.
F. tympanona Hood ('15).

aa. Without such pale area.

b. Second segment of antennae enlarged on dorsal side on the anterior end (asymetrical in side view) and bearing two heavy spines.

c. Vertex of the head depressed and anterior ocellus directed forward.

d. Antennal segment 3 a third longer than 2; abdomen slender.

e. Body yellow, surface not reticulated.
F. cephalica (Crawford).

ee. Color uniformly brown; surface of body reticulated.
F. cephalica reticulata (Crawford).

dd. Antennal segments 2 and 3 about equal in length; abdomen short; color yellow tinged with orange and brown.
F. cephalica masoni, n. var.

cc. Vertex of the head not markedly depressed; thorax orange; ocellus directed nearly vertically.
F. bispinosus (Morgan) '13.

bb. Second segment of antennae symmetrical, none of its bristles markedly enlarged.

c. Thorax tinged with orange.

d. General color brownish-yellow, not uniform; thorax orange yellow; antennal segment 1 pale yellow; 2 light brown, base sometimes yellowish.....*F. tritici* (Fitch).

dd. General color brown to dark brown; thorax orange brown.....*F. tritici moultoni* (Hood).

ddd. Head pale lemon yellow to light yellowish brown; abdomen brownish yellow to brown; antennal segment 1 whitish to light brown, 2 dark brown.

e. Antennal segments 3-5 pale yellow at the base; wings yellowish.
F. tritici occidentalis (Perande).

ee. Antennal segments 3-5 light brown or slightly gray at base; wings brown.

f. Antennal segment 5 shorter than 2, 6-8 gray; prothorax more than 1.5 times as long as wide.
F. stylosa (Hood).

ff. Antennal segment 5 as long as 2, segments 6-8 brownish; prothorax less than 1.5 times as long as wide.....*F. floridensis* (Morgan).

dddd. Color pale yellow; antennal segments 1-5 light yellowish.....*F. williamsii* Hood.

cc. Color yellow to brownish yellow, shaded with brown; no orange.

d. Costa of wing with 23-30 bristles; fore vein 17-22; hind 13-16.

e. Scale with 6 bristles; head nearly as long as wide; antennal segment 2 dark brown; tenth abdominal segment not split open above.
F. helianthi (Moulton) '11.

ee. Scale with 5 bristles; head ¾ as long as wide; antennal segment 2 yellowish gray; tenth abdominal segment split open above.....*F. gossypii* (Morgan) '13.

dd. Costa of wing with 15-19 bristles; fore vein 13-16; hind 9-10; scale 5.
F. runneri (Morgan). ('13.)

ccc. General color uniformly brown to dark brown, no orange; antennal segments 3-5 light brown to yellow and shaded.

d. Color uniformly dark brown to black; wings brownish gray to dark brown, the basal ¼ to ⅓ clear.

e. Bristles, especially on prothorax and wings, very long and heavy; prothorax considerably longer than head. Large, 1.6 mm. or more.

f. Bases only of middle and hind femora and tibiae clear pale yellow.....*F. annulipes* Hood ('15).

ff. All tarsi and tibiae, and most of fore femora pale lemon yellow. *F. citripes* Hood ('16).

ee. Bristles long but slender; body length about 1.4 mm.; prothorax about as long as head; all tarsi and tibiae lemon yellow.....*F. auripes* Hood ('15).

eee. Bristles moderate; middle and hind tibiae and femora deep brown; prothorax longer than head. Length about 1.4 mm.....*F. insularis* (Franklin).

dd. Body color yellowish brown, fore wings uniformly shaded with gray...*F. nervosa* (Uzel).

THE BUTTERFLY'S LULLABY

As we lay stretched out on the forest floor at the edge of the hammock feasting our eyes on colors of the sunset sky, along comes a butterfly hunting a safe nocturnal retreat. After trying several leaves, she finally finds one to her taste and settles down on the under side of it. Can one whose day has been so full of activity suddenly cease all motion and sink into the quiet of sleep? No more easily than can an active child. There must be a transition, a gradual letting down of nervous tension. So the butterfly waves her wings up and down, rather rapidly at first but then slower and slower until all motion ceases. Have we not here the essence of a lullaby, a monotonous repetition which gradually becomes slower and slower; a lullaby of motion rather than of sound; a lullaby given by the tired one herself, because there is none other to give it.

"The morning wind forever blows, the poem of creation is uninterrupted; but few are the ears that hear it."—Thoreau.

"Hold thou, my friend, no lesser life in scorn,
All nature is the womb whence man is born."

The
FLORIDA BUGGIST

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PROF. J. R. WATSON.....Editor
PROF. WILMON NEWELL.....Associate Editor
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THE CHASE OF CATOCALA

What the trout or the tarpon is to the fisherman, or the tiger-beetles to the coleopterist, the *Catocalas* are to the lepidopterist—the most "game" of all his prey. The hind wings of many species are very showy with wide, curved bands of red or orange. For these the moths are called "Underwings". Their attractive colors and goodly size make a desirable showing in the cabinet. But in the woods, as the moths squat in their favorite day quarters on the bark of some tree, these gaudy colors are safely hidden under the somber grays and browns of the fore pair which are laid back at an angle of 45 degrees so that the moth forms a triangle. The camouflage is perfect and could the moths but sit pat, they could rest in peace as far as humans are concerned. But if one passes within a yard or two of the tree they invariably have an attack of "nerves" and dart away with a quick jerky flight and I can no more resist the impulse to give chase than can a puppy resist the impulse to pursue any rapidly moving thing, be it mouse or railway train. The lepidopterist may know full well that he already has a case full of that particular species and has no more need of another than has the puppy for the train, but the pursuit is the rarest of sports. The primitive instinct of the chase asserts itself and after the moth he goes. But the method of the chase must be that of the cat rather than the dog. We will watch the moth as it darts away to seek another hiding place, trying first one tree trunk and then another until it finds one dark enough to satisfy its negative heliotropism. It will always be in dense shade and usually on the side away from the sun. Towards dusk the moth may fly into the tree tops but very seldom during the middle of the day. Still more seldom does one alight on the level ground but often

under the overhanging edge of a perpendicular bank. As it darts away it usually becomes lost among the tree trunks. But by following it carefully with our eyes—and feet too—we can sometimes locate the alighting place. If we are so fortunate the stalking begins. No use to try a frontal attack on these wary fellows; they will invariably fly again long before one gets within striking distance. Having spotted our moth we will make a wide detour, the radius of the circle being in direct proportion to our desire for that particular moth, keeping our eyes constantly on the central tree trunk. The chances are that he will fly again before we can get near him, but sometimes fortune again smiles and we get up to the tree unobserved. By cautiously peeping around the bole we may bring one of his wings into view without being seen ourselves. Having thus located our quarry we make a quick sweep around the tree and capture our prize—sometimes. More usually we catch nothing but a fleeting glimpse of his gay underwings as the now thoroly frightened moth betakes himself to parts unknown. Rarely indeed does he give us another chance at him. Altho the chances are against us at every turn, if we are persistent and the moths plentiful, we may occasionally experience the thrill of seeing one wildly flapping in the net; a freshly landed trout jumping on the bank has no greater. But the moth is game to the last and sorrow and exasperation will surely be our lot if there is a hole in the net. But should fortune frown upon us and we leave the woods with empty bottle, we reek no more than the luckless fisherman who at the close of a perfect day goes home to a supper of collards. Have we not enjoyed a rare game? Are our lungs not full of the ozone of the forest, and our eyes and nerves, tired by a week's work in office or laboratory, again refreshed? It is rare sport, much superior I am convinced to either tennis or golf, and as for sitting idly on a bare bleacher and watching someone else play baseball—one might as well go to a formal reception.

Only in the more dense hammocks may we hope to find the underwings, a forest to whose floor but few rays of sunshine penetrate. And it must be a high and dry hammock where the larva's host plants, oaks and hickories, grow. A low hammock of maples, ashes and sourgums will yield us nothing. Furthermore it must, for a successful hunt, be comparatively free of underbrush. Not that the catocalas object to underbrush but the hunter does. To put all your energy and thought into a grand final sweep with the net only to tear it on a greenbrier

while the moth dashes away, is conducive to language which should be reserved for mules, stovepipes, and collar buttons.

The season of the Catocalas is from the last week in April to the middle of June. My earliest capture was of *ultronia celia* on April 11; but Grossbeck (Bul. Am. Mus. Nat. Hist., vol. 27, List of the Lepidoptera of Florida) records *ilia* as having been captured at Lakeland on March 31. He does not record a single capture of any species after May 8. This is due, however, not to the lack of Catocalas after that date, but to the lack of collectors. Most of our entomologists have been migratory animals which left early in the season. Catocalas are at their height of abundance in late May and early June. Only two species have I ever captured after July 7: *ultronia celia* on Oct. 16 and *agrippina* from June 29 to September 13. Evidently the latter does not emerge until late June, which accounts for its having been missed by collectors.

THE CATOCALAS OF FLORIDA AND GAINESVILLE

Grossbeck lists seventeen species and seven varieties from the state. To these I can add two species and a variety as follows:

C. consor, May 25; said to be a rare species.

C. agrippina from Gainesville and its variety *subviridis* collected by Mr. Fritz Fuchs at Wauchula in June. So our Florida species now total 19 with 8 additional varieties. Of these I have captured about Gainesville but nine species and a variety.

Sappho seems to be our most common species, at least more have been captured. This, however, may be partly because its large size (often three inches across the wings) and the light gray color of its upper wings make it more conspicuous than the others. The under wings are dark brown edged with white. Both Holland and Barnes and McDunnough say it is rare. Its life history is entirely unknown. Its relatives spend their caterpillar days on the hickory and it is probable that this one does likewise. It is found only in woods with hickories.

Another with dark brown under wings is *epione*. This is smaller and the upper wings are mottled dark gray and brown. It has been captured only at Gainesville and in late May. It is evidently another late-emerging species which has escaped the tourist entomologists. Its larva lives on oaks and hickories.

Agrippina is the third species with dark brown unbanded under wings. Its colors are much like *epione* but it is a larger insect, some measuring 3.5 in.

Of the species with bright orange bands across the underwings, *ilia* Cramer is the most common. Its upper wings are mottled gray and expand 3.5 in. My captures are from May 12 to 23.

Cara is a trifle larger. It is more brown on the upper wings and the bands on the under wings are red. It is not common here because, of the food plants of its larva, willow is scarce and poplar entirely absent. Ours is the var. *carissimas*, the southern form.

Ultronia has much the same colors but is smaller, about 2.25 in.

Its var. *celia* has the first black band of the under wings narrower and usually a whitish smudge running lengthwise of the fore wing. Its larva feeds on oak, wild cherry, and plum.

In *muliercula* Guer (The Little Wife) the bands are yellowish orange. My captures range from May 26 to June 11, but Grossbeck records it from Lakeland as early as May 5. The food plant of the caterpillar is wax myrtle.

In *similis* var. *aholah* the orange has been replaced by yellow. This is the smallest of our species, measuring but little more than 1.5 in. April 18 is the only date.

The caterpillars of the hickory feeding species often attack pecans but seldom become numerous. The insect is a lover of the deep forest and visits the more open pecan groves only occasionally and at night.

PERSONALS

Clarence Bass, who is now with a subchaser doing patrol duty, recently enjoyed shore leave at Miami and renewed his acquaintance with former associates in the State Plant Board work.

F. F. Bibby is at present with the U. S. Field Hospital and is stationed at Santo Domingo, D. R.

O. K. Courtney is now in the employ of the Federal Horticultural Board and is stationed at New Orleans in connection with the work of inspecting plant importations at that port.

L. A. Daniel, District Inspector for the State Plant Board, is planning to leave for the North early in July to be gone for several months.

J. Chaffin is at present on a trip to the East Coast, where he is assisting various assistant nursery inspectors of the Plant Board in the work in their respective districts.

J. C. Goodwin is spending a couple of weeks in the field inspection work on the East Coast along with the Plant Board inspectors working under the direction of District Inspector A. L. Swanson.

J. E. Graf recently left for Washington, where he will spend some time in conference with the officials of the Bureau of Entomology regarding the eradication of the sweet potato weevil.

A. S. Hooker has recently been transferred from scout inspection work in Lake County, Fla., to duty at Sebring, Fla.

W. N. Hull has recently returned from a few weeks' sojourn at Hot Springs, Ark. He plans to shortly move from Miami to a point on the Florida Keys where important developments in connection with the lime industry are under way.

Arthur C. Brown is at present in charge of the port and quarantine inspection work at Miami for the Federal Horticultural Board and State Plant Board of Florida.

Walter O. Lahrman, formerly assistant nursery inspector for the State Plant Board, is now in the garage business at Daytona.

L. Russell Warner is in charge of the plant quarantine inspection work at Key West, assisted by Messrs. Emil L. Gehry and Harold Mowry.

Thomas R. Robinson, who returned a few weeks ago from military service, is now stationed at Largo, Fla., in connection with the canker eradication work of the Bureau of Plant Industry and State Plant Board.

L. O. Smith is now an inspector in the employ of the Federal Horticultural Board and is stationed at El Paso, Texas.

"Doc" (C. E.) Wilson and Mrs. Wilson (formerly Miss Mildred Nothnagel) are now located in their new home at the Experiment Station at St. Croix, Virgin Islands.

Miss Evelyn Osborn leaves for her home in Ohio early in July. The small appropriation given to the Experiment Station by the Legislature has rendered it necessary to dispense with all assistants.

Dr. H. S. Davis, secretary of the Society, has left on his summer vacation. He will spend most of it at the laboratory of the U. S. Bureau of Fisheries at Fairport, Ia., studying the diseases of fishes.

REPORTS OF MEETINGS

April 28. The Society was called to order by the president with the following members present: E. W. Berger, E. K. Bynum, H. S. Davis, P. W. Fattig, K. S. Lamb, G. B. Merrill, Wilmon Newell, F. M. O'Byrne, Frank Stirling, O. T. Stone, J. R. Watson, A. C. Brown. Visitors: F. N. Cellon, Miss Evelyn Osborn.

Under "Timely Notes" Mr. Stirling exhibited specimens of the large luminous elater of the West Indies, *Pyrophorus noctilucus*, taken from the mails by the quarantine department at Key West. The large luminous areas on the sides of the prothorax gave off a light sufficient for reading a newspaper. Mr. Stirling exhibited a drone trap filled with drones captured at the entrance to one of his hives.

Mr. Stirling read a paper on "Birds as Plant Preservers", pointing out the great value of birds in keeping down insect pests and in destroying the seeds of weeds.

Prof. Watson gave a brief talk on The Cuban Citrus Thrips, *Frankliniella insularis*.

May 26. The meeting was called to order by Pres. O'Byrne. The following new members were elected: Miss Evelyn Osborn, assistant entomologist in the Experiment Station, and G. F. Mosnette, in charge of the Laboratory for the Study of Insects of Sub-tropical Fruits Other than Citrus, U. S. Bur. Ent., Miami.

P. W. Fattig gave the paper of the evening on "Grasshoppers", drawing largely from his experience while connected with the anti-grasshopper campaign in North Dakota. He stated that he had collected 47 species in the Gainesville region.

Under "Timely Notes" Dr. Berger exhibited specimens of an unidentified beetle boring in citrus. He stated that it is the first time he has had any experience with borers injuring citrus but has understood that there was considerable injury after the great freeze. Prof. Watson, as the member of the committee for Florida, Georgia and the Carolinas, announced that the Ecological Society of America desired information concerning tracts of land which should be preserved in their natural condition for the study of their peculiar fauna and flora. He also announced considerable damage to peanuts by thrips at Oldsmar. E. K. Bynum reported having found a severe infestation at Moore Haven.

The Secretary called attention to a monograph on the Ameri-

can species of the genus Catocala (Moths) by Barnes and McDunnough which had been presented to the Society by the American Museum of Natural History.

H. S. DAVIS, Sec'y.

June 23. Meeting called to order by Pres. O'Byrne. Visitors present were Dr. C. F. Hodge, instructor in nature study in the summer school; Mr. W. L. Goethe, principal of the Eustis schools; Miss Ora Hiatt and Mr. J. C. Holton, both of Gainesville, Fla.

The paper of the evening on "Spiders" was read by Miss Evelyn Osborn. This was illustrated by specimens of some of the more common species of spiders of the Gainesville region.

Under "Timely Notes" Dr. Hodge mentioned the success which his fly trap is meeting. J. R. W.

STRATEGUS WANTED—Am making a special study of this genus, of the Scarabeidae, and should be very glad to receive Florida specimens, especially of the rarer species. Will exchange or pay cash. Address W. Knaus, McPherson, Kansas.

"TESTED SEEDS FOR FLORIDA"

SEEDS FOR

FARM AND GARDEN

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